



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

application of:

TAYLOR ET AL.

Serial No.: 10/787,363

Filed: February 26, 2004

Title: "CO₂ MISCIBLE OPTIMIZED HYDROCARBON BLENDS AND METHODS OF USING CO₂ MISCIBLE OPTIMIZED HYDROCARBON BLENDS"

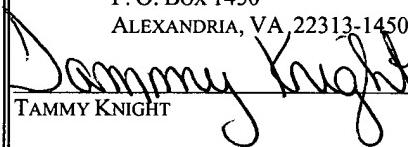
§ Group Art Unit: 3672
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§ Examiner: COY, NICOLE A.
§
§ Atty. Docket No: 2003-IP-012051U1
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CERTIFICATE OF MAILING

SERIAL NO.: 10/787,363
ATTY. DOCKET NO.: 2003-IP-012051U1
GROUP ART UNIT: 3672
EXAMINER: NICOLE A. COY

PURSUANT TO 37 C.F.R. § 1.10, I HEREBY CERTIFY THAT I HAVE INFORMATION AND A REASONABLE BASIS FOR BELIEF THAT THIS CORRESPONDENCE WILL BE DEPOSITED WITH THE UNITED STATES POSTAL SERVICE AS EXPRESS MAIL, POST OFFICE TO ADDRESSEE, ON THE DATE INDICATED BELOW, AND IS ADDRESSED TO:

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8/4/06
DATE

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P.O. Box 1450
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DECLARATION OF GARY P. FUNKHOUSER UNDER 37 C.F.R. § 1.132

1. My name is Gary P. Funkhouser. I am over the age of 21 years, of sound mind, and competent in all respects to make this Declaration. I am a co-inventor in the above-identified patent application.

2. I performed an experiment according to the following procedure:

a. I calculated the bubble point pressures for two different hydrocarbon mixtures using the NIST Standard Reference Database 4, Thermophysical Properties of Hydrocarbon Mixtures Database (SUPERTRAPP), Version 2.01.

b. Hydrocarbon Mixture A was a kerosine surrogate composition that consisted of the following blend of hydrocarbons:

Component - Hydrocarbon Mixture A	Wt%
isooctane	5
methylcyclohexane	5
<i>m</i> -xylene	5
1,1,2-trimethylcyclohexane	5
decane	15
butylbenzene	5
1,2,4,5-tetramethylbenzene	5
<i>cis</i> -decalin	5
dodecane	20
1-methylnaphthalene	5
tetradecane	15
hexadecane	10

c. Hydrocarbon Mixture B was a hydrocarbon blend that consisted of the following blend of hydrocarbons:

Component - Hydrocarbon Mixture B	Wt%
heptane	25
octane	25
nonane	25
decane	25

d. I calculated the bubble point pressures for these hydrocarbon mixtures at five different temperatures (100°C, 120°C, 130°C, 140°C, and 150°C).

3. The bubble point pressures that I calculated according to the above procedure are given below:

Temp., °C	Bubble point pressures (psi)	
	Hydrocarbon Mixture A	Hydrocarbon Mixture B
100	2.8	7.1
120	5.1	12.8
130	6.5	16.5
140	8.1	21.3
150	10.9	27.1

4. In my opinion, these bubble point pressures indicate that the hydrocarbon blends with compositions similar to those of Hydrocarbon Mixture A will be less volatile than those similar to Hydrocarbon Mixture B.

5. I hereby declare that all statements made herein of my own knowledge are true and that all statements made herein on information and belief are believed to be true. I declare that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Gary P. Funkhouser
Gary P. Funkhouser

Date: 8-2-2006